

What is claimed is:

1. A motor vehicle lock comprising:

a latch which includes a pre-catch and a main catch and is pivotable around a first axis into an open position, into a pre-catch position and into a main catch position;

a ratchet which is pivotable around a second axis into an open position, into a pre-catch position and into a main catch position; and

an actuating element which includes an actuator element having an engagement element located thereon;

wherein the latch is engaged with the pre-catch or the main catch when the ratchet is located in the pre-catch position or in the main catch position,

wherein the latch is kept in the pre-catch position or the main catch position until movement of the actuator element out of an initial position in a first direction such that the ratchet is raised by the actuating element resulting in an opening assistance function,

wherein the latch is movable from the pre-catch position into the main catch position by actuating the actuator element out of the initial position in a second direction opposite the first direction which couples the actuating element to the latch resulting in a closing assistance function, and

wherein coupling for the closing assistance function is effected by a step-down gear interposed between the actuating element and the latch.

2. The motor vehicle lock as claimed in claim 1, wherein the actuating element is rotatable about a third axis which is spaced apart from and aligned essentially parallel to said first axis, and wherein the engagement element provides a coupling to the ratchet during movement in the first direction and to the latch during movement in the second direction.

3. The motor vehicle lock as claimed in claim 2, wherein the actuating element is a worm wheel is rotatable around the third axis and the engagement element is a

coupling journal located on an end face of the worm wheel and extends parallel to the third axis.

4. The motor vehicle lock as claimed in claim 1, wherein the step-down gear between the actuating element and the latch is an essentially disk-shaped transmission element which is pivotable around a fourth axis and includes a first actuating surface and a second actuating surface,

wherein the transmission element, via the first actuating surface, engages the engagement element of the actuating element during movement of the actuating element in the second direction which causes, via the second actuating surface, forced engagement of the latch for coupling of the actuating element to the latch.

5. The motor vehicle lock as claimed in claim 2, wherein the step-down gear between the actuating element and the latch is an essentially disk-shaped transmission element which is pivotable around a fourth axis and includes a first actuating surface and a second actuating surface,

wherein the transmission element, via the first actuating surface, engages the engagement element of the actuating element during movement of the actuating element in the second direction which causes, via the second actuating surface, forced engagement of the latch for coupling of the actuating element to the latch.

6. The motor vehicle lock as claimed in claim 1, wherein the step-down gear includes several stages.

7. A motor vehicle lock comprising:

a latch which includes a pre-catch and a main catch and is pivotable around a first axis into an open position, into a pre-catch position and into a main catch position;

a ratchet which includes a magnet and is pivotable around a second axis into an open position, into a pre-catch position and into a main catch position; and

two Hall sensors located in a stationary position relative to the ratchet and each being capable of generating a sensor signal;

wherein the latch is engaged with the pre-catch or the main catch, when the ratchet is located in the pre-catch position or in the main catch position

wherein the two Hall sensors and the magnet on the ratchet are arranged such that the magnet is moved by moving the ratchet into detection range of one of the two Hall sensors, into the detection ranges of the two Hall sensors and outside the detection ranges of the two Hall sensors, and

wherein a control is provided for determining the position of the ratchet from the sensor signals generated by of the Hall sensors.

8. The motor vehicle lock as claimed in claim 7, wherein the magnet is located outside the detection ranges of the two Hall sensors when the ratchet is in the open position, wherein the magnet is in the detection range of one of the two Hall sensors when the ratchet is in the pre-catch position and wherein the magnet is in the detection ranges of both Hall sensors when the ratchet is in the main catch position.

9. The motor vehicle lock as claimed in claim 7, wherein the ratchet includes a receiver portion for the magnet which is spaced apart from the second axis such that the two Hall sensors detect movement of the ratchet from the open position into the pre-catch position and from the pre-catch position into the main catch position.

10. The motor vehicle lock as claimed in claim 8, wherein the ratchet has a receiver portion for the magnet which is spaced apart from said second axis of the ratchet such that the two Hall sensors detect movement of the ratchet from the open position into the pre-catch position and from the pre-catch position into the main catch position.

11. The motor vehicle lock as claimed in claim 7, further comprising an actuating element having an engagement element located thereon; and

a third Hall sensor which is stationary relative to the actuating element,

wherein the actuating element has first, second and third spaced apart magnets mounted thereon,

wherein the latch is kept in the pre-catch position or the main catch position until the movement of the actuator element out of an initial position in a first direction such that the ratchet can be raised by the actuating element resulting in an opening assistance function,

wherein the latch is movable from the pre-catch position into the main catch position by actuating the actuator element out of the initial position in a second direction opposite the first direction which couples the actuating element to the latch resulting in a closing assistance function,

wherein the first magnet moves into the detection range of the third Hall sensor when the actuating element is moved out of the initial position in the first direction,

wherein the third magnet moves into the detection range of the third Hall sensor when the actuating element is moved out of the initial position in the second direction, and

wherein the second magnet moves into the detection range of the third Hall sensor when the actuating element is moved out of the deflected position into the initial position.

12. The motor vehicle lock as claimed in claim 11, wherein the first magnet moves into the detection range of the third Hall sensor when the actuating element is moved out of the initial position by more than 90° in the first direction.

13. The motor vehicle lock as claimed in claim 11, wherein the first magnet moves into the detection range of the third Hall sensor when the actuating element is moved out of the initial position by approximately 135° in the first direction.

14. The motor vehicle lock as claimed in claim 11, wherein the third magnet moves out of the initial position into the detection range of the third Hall sensor when the actuating element is moved by more than 90° in the second direction.

15. The motor vehicle lock as claimed in claim 11, wherein the third magnet moves out of the initial position into the detection range of the third Hall sensor when the actuating element is moved approximately 125° in the second direction.

16. The motor vehicle lock as claimed in claim 7, further including a control device which is connected to each of two Hall sensors.

17. The motor vehicle lock as claimed in claim 11, further including a control device which is connected to each of three Hall sensors.

18. The motor vehicle lock as claimed in claim 1, further comprising two Hall sensors located in a stationary position relative to the ratchet and each capable of generating a sensor signal,

wherein the ratchet includes a magnet, and

wherein the two Hall sensors and the magnet on the ratchet are arranged such that the magnet can be moved, by movement of the ratchet, into detection range of one of the two Hall sensors, into the detection ranges of the two Hall sensors and outside the detection ranges of the two Hall sensors and

wherein the position of the ratchet can be determined from sensor signals generated by the Hall sensors.

19. The motor vehicle lock as claimed in claim 18, wherein the magnet is located outside the detection ranges of the two Hall sensors when the ratchet is in the open position,

wherein the magnet is in the detection range of one of the two Hall sensors when the ratchet is in the pre-catch position, and

wherein the magnet is in the detection ranges of both Hall sensors when the ratchet is in the main catch position.

20. The motor vehicle lock as claimed in claim 18, wherein the ratchet includes a receiver portion for the magnet which is spaced apart from the second axis

such that the movement of the ratchet from the open position into the pre-catch position and from the pre-catch position into the main catch position is sensed by the two Hall sensors.

21. The motor vehicle lock as claimed in claim 19, wherein the ratchet includes a receiver portion for the magnet which is spaced apart from the second axis of the ratchet such that the movement of the ratchet from the open position into the pre-catch position and from the pre-catch position into the main catch position is sensed by the two Hall sensors.

22. A motor vehicle lock comprising:

a latch which includes a pre-catch and a main catch and is pivotable around a first axis into an open position, into a pre-catch position and into a main catch position;

a ratchet which is pivotable around a second axis into an open position, into a pre-catch position and into a main catch position;

an actuating element having first, second and third spaced apart magnets mounted thereon; and

a Hall sensor which is stationary relative to the actuating element,

wherein the latch is engaged with the pre-catch or the main catch when the ratchet is located in the pre-catch position or in the main catch position,

wherein the latch is kept in the pre-catch position or the main catch position until the movement of the actuator element out of an initial position in a first direction such that the ratchet is raised by the actuating element resulting in an opening assistance function,

wherein the latch is moved from the pre-catch position into the main catch position by actuating the actuator element out of the initial position in a second direction opposite the first direction which couples the actuating element to the latch resulting in a closing assistance function, and

wherein the first magnet moves into the detection range of the Hall sensor when the actuating element is moved out of the initial position in the first direction,

wherein the third magnet moves into the detection range of the Hall sensor when the actuating element is moved out of the initial position in the second direction, and

wherein the second magnet moves into the detection range of the Hall sensor when the actuating element is moved out of the deflected position into the initial position.

23. The motor vehicle lock as claimed in claim 22, wherein the first magnet moves into the detection range of the Hall sensor when the actuating element is moved out of the initial position by more than 90° in the first direction.

24. The motor vehicle lock as claimed in claim 22, wherein the first magnet moves into the detection range of the Hall sensor when the actuating element is moved out of the initial position by approximately 135° in the first direction.

25. The motor vehicle lock as claimed in claim 22, wherein the third magnet moves out of the initial position into the detection range of the Hall sensor when the actuating element is moved by more than 90° in the second direction.

26. The motor vehicle lock as claimed in claim 22, wherein the third magnet moves out of the initial position into the detection range of the Hall sensor when the actuating element is moved approximately 125° in the second direction.

27. The motor vehicle lock as claimed in claim 22, further including a control device which is connected to the Hall sensor.